

From: [ANDERSON Jim M](#)
To: [Eric Blischke/R10/USEPA/US@EPA](#)
Subject: RE: LWG Proposed Groundwater RAO
Date: 09/17/2009 05:16 PM

OK, but 1 more thing for you to think about..., let's consider 2 different scenarios. In the **1st scenario**, contaminated groundwater..., sourced from an upland site..., flows thru relatively clean river sediment. EPA's general RAO for this scenario would be to protect receptors & the beneficial uses of groundwater & the receiving-body surface water. EPA would use AWQC & MCLs/tap-water-PRGs to screen the groundwater. In the **2nd scenario**, clean groundwater flows thru contaminated sediment..., resulting in contaminated pore water (i.e., in EPA's RAO terms..., groundwater). The same general RAO for the **1st scenario** should apply to the **2nd scenario**. The LWG would argue that they analyzed bulk sediment samples..., which contain a water fraction..., therefore accounting for water contamination in the bulk sediment sample. I guess the LWG is saying that if the results from the bulk sediment analyses are below sediment RBCs (or other LOE), they're accounting for water contamination in that sediment sample. There may be some merit in this LWG argument, particularly for eco receptors, **but how does bulk sediment analysis evaluate a human health drinking water exposure scenario?**

It seems that EPA is concerned that upland-sourced groundwater plumes need to be controlled so they don't exceed drinking water standards..., including in the transition zone..., but EPA isn't concerned whether contaminated sediment (surface or subsurface) contaminates clean groundwater above drinking water standards in the transition zone or below the river. Does that make sense?

Jim

-----Original Message-----

From: Blischke.Eric@epamail.epa.gov
[<mailto:Blischke.Eric@epamail.epa.gov>]
Sent: Thursday, September 17, 2009 11:17 AM
To: ANDERSON Jim M
Subject: RE: LWG Proposed Groundwater RAO

Thanks for the feedback Jim. At this time, we are trying to avoid a major re-write of the RAOs and do not agree with the LWG's proposed language. Our approach will be to extract out the groundwater language

from RAOs 1,2,4 and 5 and develop two new groundwater RAOs - one for human health and one for ecological receptors.

Eric

"ANDERSON Jim
M"

<ANDERSON.Jim@de

q.state.or.us>
To

Blischke/R10/USEPA/US@EPA,
Eric

09/16/2009 05:08 PM
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<GAINER.Tom@deq.state.or.us>

Subject

RE: LWG Proposed Groundwater

RAO

Eric & Chip,

I wanted to give you some feedback..., as you requested..., before your 9/17

EPA-internal ROA mtg. Our position on the use of the term "groundwater"

in the RAOs hasn't really changed from our position described in our 7/23/09 & 8/7/09 letters to you re: RAOs. To summarize that position...,

I believe either the term "pore water" or "transition zone water" are more appropriate than "groundwater" because those terms more clearly define the precise physical medium where exposure is suspected to occur.

However, in EPA/partners & LWG discussions subsequent to our 2 letters...,

we talked a lot about the need to address groundwater downgradient to an

effective upland source control measure (i.e., groundwater in the stranded wedge) in RAOs. I understand this stranded wedge groundwater is the same as the LWG's phrase "groundwater contamination beneath the Willamette River". I think it's important this stranded wedge groundwater be considered in the RAO discussion, but I don't think stranded groundwater should be called-out specifically as an RAO. The main reason is because the LWG has not characterized the nature & extent

of contamination in the stranded wedge & therefore it will be very difficult for them to design remedial alternatives to achieve that RAO.

If EPA insists on requiring a consideration of stranded wedge groundwater in the RAO discussion..., perhaps you could make it Management

Goal rather than an RAO.

If, however, EPA insists on creating a separate RAO for groundwater..., I

have several comments on the LWG's proposed groundwater RAO.

1) The current form & wording of the RAO is much different than the 6 existing RAOs. The groundwater RAO should be re-written to more closely match the other RAOs. For instance, the groundwater RAO should discuss how human & eco receptors would

be exposed to groundwater & how the goal would protect human & eco

receptors.

2) What are the “beneficial use(s) of groundwater beneath the

Willamette River”?

3) Exchange the existing phrase “groundwater contamination beneath the Willamette River” for “groundwater downgradient to an effective upland source control measure”.

4) The groundwater RAO should not only “protect beneficial water uses”, but should protect benthic & aquatic receptors.

Perhaps protection of benthic & aquatic receptors (& human receptors thru bioaccumulation) is implied thru the phrase

“protect beneficial water uses”..., but it’s not as clear & explicit

s it could be.

Jim Anderson

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From: Blischke.Eric@epamail.epa.gov [
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Sent: Wednesday, September 09, 2009 2:25 PM

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Subject: Fw: LWG Proposed Groundwater RAO

Below is the proposed language groundwater RAO language from Carl.

Eric

----- Forwarded by Eric Blischke/R10/USEPA/US on 09/09/2009 02:22 PM

"Carl
Stivers"

<cstivers@anchorqea.com>

To

09/08/2009 08:35 PM

Eric Blischke/R10/USEPA/US@EPA,

Chip

Humphrey/R10/USEPA/US@EPA

cc

"Jennifer

Woronets"

<jworonets@anchoragea.com>

Subject

LWG Proposed Groundwater

RAO

Eric and Chip -

Here is the text that we discussed today.

RAO Groundwater - Address groundwater contamination beneath the Willamette River, as necessary, to protect the designated beneficial uses of the Willamette River from impairment caused by upwelling of contaminated groundwater, protect the beneficial use of groundwater beneath the Willamette River, and comply with identified ARARs for groundwater applicable to the beneficial uses addressed by this RAO. This RAO applies to groundwater contamination beneath the Willamette River at appropriate points of compliance to protect these beneficial uses, with the understanding that groundwater plumes that impair the designated beneficial uses will be addressed through upland source control actions.

Thanks.

Carl

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